

## Completed Pollution Prevention Project Case Study

United States Department of Energy  
Office of Environmental Management  
Fact Sheet

### Evaporation Prevention at the Wastewater Treatment Plant Los Alamos National Laboratory

#### Original Problem

After the water is treated at the Sanitary Wastewater System (SWS) facility, it is stored in a 450,000 gallon holding tank prior to being sent to the reuse tank at Technical Area 3. Large amounts of chlorine must be added to the water to prevent the growth of algae. Some of this chlorine and clean water escapes into the atmosphere through evaporation.

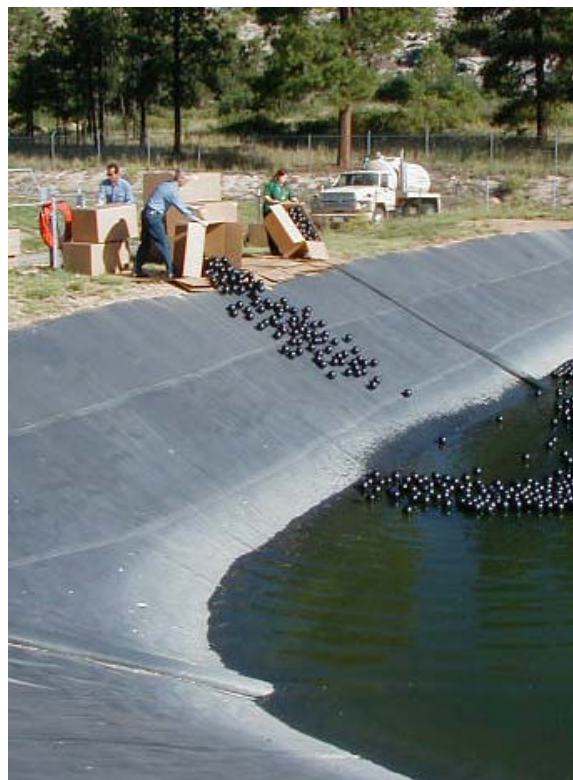
#### The Project Solution

To reduce the amount of water and chlorine that evaporate from the pond, a total of 53,280 hollow high-density polyethylene (HDPE) spheres were used to cover the surface of the pond. Each sphere has a diameter of 4.5 inches, and the surface of the pond covers an area of 6660 square feet. Black HDPE was chosen for the spheres because this material resists degradation by ultraviolet rays. A similar technique has been used on a smaller scale to control algae and minimize evaporation for temperature-controlled water baths.

#### Value of Improvement

This modification at the SWS plant yields several positive benefits. The plastic spheres are expected to prevent the evaporation of approximately 150,000 gallons of treated water every year. The plastic spheres will block about 95% of the sunlight from the water, slowing the growth of algae. Since less chlorine will evaporate, less will need to be added, thereby reducing the total dissolved solid concentration in the water by about 50ppm.

Lifecycle Waste Reduction	
Lifecycle Waste Reduction	150,000gal / yr
Commencement Date	2001
Project Useful Life (Years)	15+



#### DOE Monetary Benefits

Total Project Cost	~\$21,000
Lifecycle Savings	TBD
Return on Investment	NA

#### Benefits At-A-Glance

- The spheres are expected to prevent approximately 150,000 gallons of treated water per year from evaporating.
- Since less chlorine will evaporate and require replacement, the total dissolved solid concentration in the water is expected to decrease by about 50ppm.

## **Evaporation Prevention at the Wastewater Treatment Plant Los Alamos National Laboratory**

Summary Data	
Priority Area:	Waste Minimization Projects
Project Type:	Process Re-Design
Total Project Cost:	~\$21,000
Lifecycle Savings:	TBD
Implementing Groups:	SWS Plant
Benefiting Group:	SWS Plant
Useful Life Years:	15+
Return on Investment:	NA
Lifecycle Waste Reduction:	150,000 gallons of clean water / year will be saved
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